

CLAIMS

What Is Claimed Is:

1. A coin separating unit comprising:
 - a coin transporting unit for receiving coins on a support surface that translates the coins for subsequent processing, the support surface having a predetermined flexibility and friction characteristic to engage the coins for translation and to enable coin movement transverse to a direction of movement;
 - a separating roller unit positioned above the support surface at a distance no greater than twice the thickness of the coins to be separated, the surface of the separating roller unit closest to the support surface moving in a direction opposite to the movement of the support surface; and
 - a supporter unit operatively located upstream, relative to movement of the support surface and adjacent the separating roller unit, the supporter unit is movably located above the support surface by a distance which approximates the thickness of the coins to be separated wherein the supporter unit can move transverse to the support surface when engaging a coin and can assist in preventing more than one coin from passing beneath it before the coin engages the separating roller unit and the flexibility of the support surface accommodates relative movement of a coin to assist in preventing coin jams.
2. The coin separating unit of Claim 1 wherein the separating roller unit is rigidly fixed above the support system.
3. The coin separating unit of Claim 1 further including a coin drawing auxiliary unit is located downstream of the separating roller unit.
4. The coin separating unit of Claim 1 wherein the separating roller unit rotates so that its surface closest to the support surface is moving opposite to the translation direction of the support surface.
5. The coin separating unit of Claim 1 wherein the supporter unit includes a roller member rotatably mounted on a pivotable lever.

6. The coin separating unit of Claim 5 wherein the supporter unit is biased by predetermined force towards the support surface.

7. The coin separating unit of Claim 6 wherein the supporter unit is biased by a spring member.

8. The coin separating unit of Claim 1 further including a second coin transporting unit for receiving a coin from the first coin transporting unit and translating the coin at a faster speed than the first coin translating unit.

9. In a coin separating assembly for separating coins of different sizes, the improvement comprising:

a coin hopper for receiving various coins of different sizes in bulk; and

a rotating belt positioned under the coin hopper for receiving coins from the coin hopper by a gravity feed, the rotating belt has a pivoting support member on an underside wherein the rotary belt has a predetermined flexibility to enable a coin to be pushed into the rotating belt and the pivoting support member can accommodate the coin movement traverse to the directional movement of the belt.

10. In a coin separating assembly for separating coins of different sizes, the improvement comprising:

a coin transporting unit including a rotating belt for translating coins along a direction of movement having a predetermined flexibility to permit displacement of a coin being translated in a traverse direction;

a separating roller unit having a plurality of separating rollers rotably mounted at a fixed distance above a coin supporting surface of the rotating belt; and

a supporter roller unit, operatively located upstream of the separating roller unit and adjacent the separating roller unit, including at least one supporter roller unit rotably mounted to contact any overlaying coins and assist in permitting the underlaying coin to pass to the separating roller unit while displacing the overlaying coin, wherein the coins can pass beneath the separating roller unit and the rotating belt can flex to increase the distance beneath the separating roller unit as the coin passes underneath.

11. A coin separating unit comprised of:
 - a coin transporting unit where plural coins are located on it and they are transported towards a storing direction;
 - a separating roller which is located above the coin transporting unit at a distance which is, at most, two times the thinness of the thinnest coin or less, at least when the coin transporting unit moves in the storing direction, the peripheral surface moves in the opposite direction to the storing direction;
 - the coin transporting unit and the separating roller can move relative for increasing the distance;
 - a supporter unit which is located upstream from the separating roller and is located above the coin transporting unit at a distance which is, at most, the thinness of the thinnest coin or less, and it moves away from the coin transporting unit by the coin.
12. The coin separating unit as claimed in claim 11:
 - the coin transporting unit can resiliently bend down to the coin putting surface in a right angle direction, and the position of the separating roller is fixed at a predetermined position.
13. The coin separating unit as claimed in claim 11:
 - the supporter unit is a roller.
14. The coin separating unit as claimed in claim 13:
 - the supporting roller is rotatable on a lever, which is pivotable and is coaxially to the separating roller, also the supporting roller is urged to the coin transporting unit by a predetermined force.
15. The coin separating unit as claimed in claim 13:
 - the supporting roller has contact with the transporting unit and is rotated by the coin transporting unit.
16. The coin separating unit as claimed in claim 11:
 - further including a coin drawing auxiliary unit located downstream of the separating roller.

17. The coin separating unit as claimed in claim 11, the separating roller rotates in the same direction to the coin transporting unit relative to the opposed movement of the coin transporting unit.

18. The coin separating unit as claimed in claim 11:

the drawing auxiliary unit is located downstream of the coin transporting unit and a second coin transporting unit moves faster than the coin transporting unit.

19. The coin separating unit as claimed in claim 11:

the drawing auxiliary unit is a roller which is located downstream of the separating roller and has a distance which is, at most, thinner than the thinnest coin and is located away from the second coin transporting unit